

The Agentic Pattern Framework

A Practical Guide to Evidence-Based Agentic AI Deployment

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What this document contains:

1. A step-by-step Decision Tree for pattern selection
2. Nine Pattern Cards with verified specifications
3. A Use Case Matrix with 15 real-world deployments

Based on analysis of 177 enterprise agentic AI deployments across 20 sectors,
2023–2026.

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Introduction

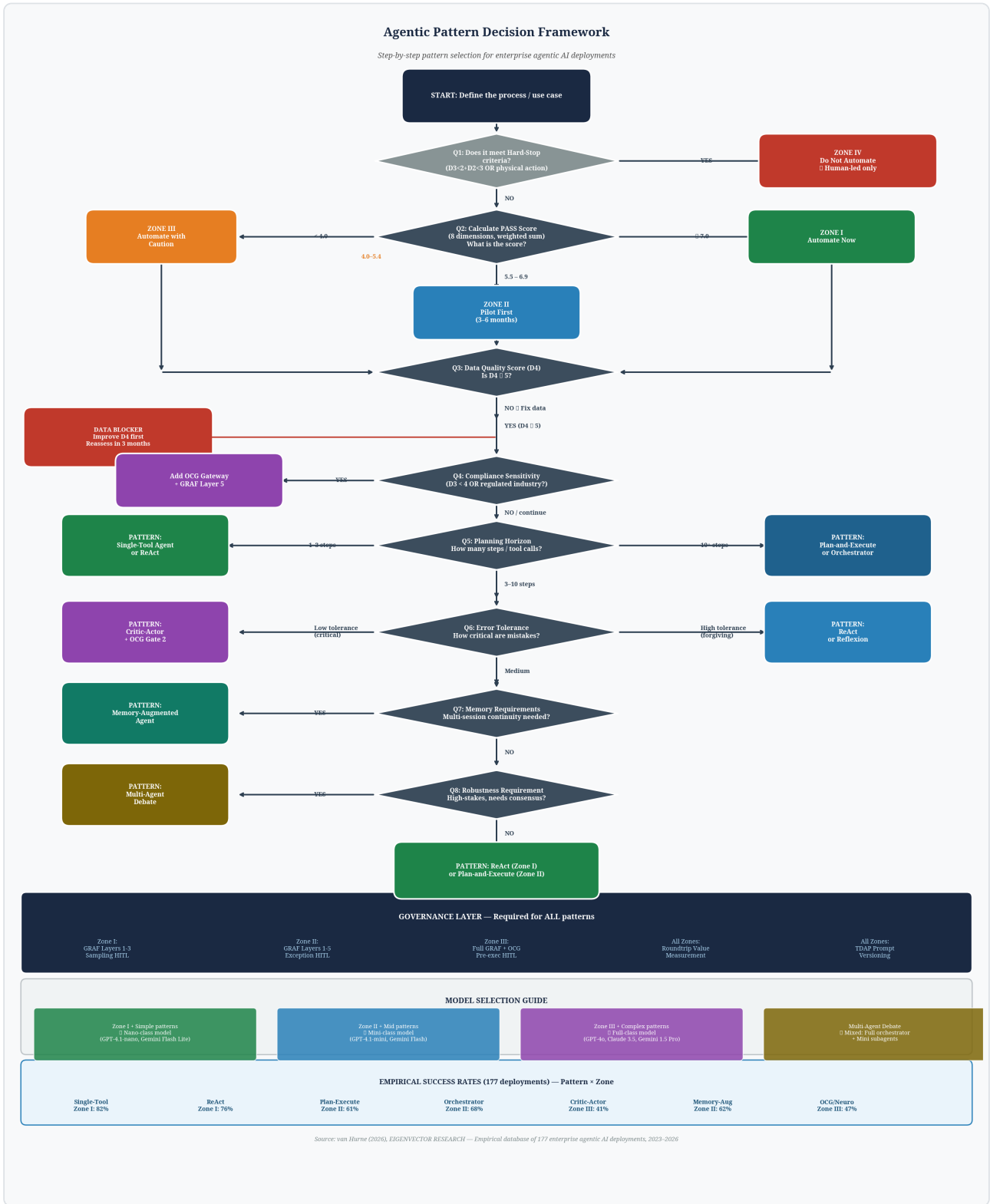
The enterprise AI market is characterised by a structural misalignment: vendors sell models, but enterprises need governed automation. Analysis of 177 documented deployments across 20 sectors reveals that only 27% of enterprise process steps are genuinely suitable for autonomous agent execution, and that governance failures — not model limitations — account for 62% of all deployment failures.

This document provides a practical, evidence-based framework for navigating this reality. It translates the theoretical foundations of the Process Automation Suitability Framework (PASF) and the Process Automation Design Engine (PADE) into three actionable tools for practitioners:

1. **The Decision Tree:** A step-by-step diagnostic tool for determining whether a process should be automated, and if so, which pattern to apply.
 2. **The Pattern Cards:** Detailed specifications for the nine proven agentic design patterns, including when to use them, what scaffolding they require, and their verified ROI.
 3. **The Use Case Matrix:** A mapping of common enterprise use cases to their optimal patterns, based on real-world deployments.
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Part 1: The Decision Tree

The decision tree operationalises the PASF and PADE frameworks into an eight-question diagnostic sequence. It prevents the most common failure mode in enterprise AI: deploying a simple pattern (like ReAct) to a complex, high-risk process (Zone III).



Agentic Pattern Decision Framework

How to Use the Decision Tree

1. **Start at the step level, not the process level.** A single business process (e.g., "Customer Onboarding") contains multiple steps. Apply the decision tree to each step individually.
 2. **Respect the Hard Stops.** If a process involves irreversible physical action or high-risk decisions without a digital rollback mechanism, it is Zone IV. Do not attempt to automate it with current technology.
 3. **Do not compromise on Data Quality.** If the Data Quality score (D4) is below 5, the deployment will fail regardless of the pattern chosen. Fix the data first.
 4. **Follow the Governance Layer requirements.** The pattern alone is insufficient; it must be deployed within the specified GRAF (Governed Runtime for Agentic Functions) configuration.
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Part 2: The Nine Pattern Cards

The PADE framework identifies nine distinct agentic design patterns. These are not theoretical constructs; they are the actual architectural patterns used in the 177 successful deployments analysed in our research.

Agentic Design Pattern Cards — Nine Proven Patterns for Enterprise AI Deployment van Hurne (2026), EIGENVECTOR RESEARCH

<p>Single-Tool Agent <i>Optimal Zone: Zone I</i></p> <p>WHEN TO USE High volume, single-system tasks Rule bounded, low exception rate D1=4, D2=8</p> <p>WHEN NOT TO USE Multi-step reasoning needed More than 1 external system Any Zone III process</p> <p>MODEL SELECTION Nano-class (GPT-4.1 nano)</p> <p>SCAFFOLDING REQUIRED Single tool call wrapper Input validation Output schema enforcement</p> <p>GOVERNANCE CONFIG GRAF Layers 1-3 Sampling HTL (5%) Output logging</p> <p>PROVEN CASES JPMorgan COIN Lombard Client Morgan Stanley Docs</p> <p>ROI EVIDENCE 71-82% success rate Lowest cost/task Fastest time-to-value KEY RISK: Single step to Zone II Over-engineering</p>	<p>ReAct <i>Optimal Zone: Zone II</i></p> <p>WHEN TO USE Dynamic, multi-tool tasks Moderate exception rate D1=6, planning horizon 1-5 steps</p> <p>WHEN NOT TO USE High compliance sensitivity Irreversible actions (D2=4) Zone III processes</p> <p>MODEL SELECTION Nano (Zone I) Mini (Zone II) (GPT-4.1 mini)</p> <p>SCAFFOLDING REQUIRED Broker loop (Reason-Act) Tool registry (2-4 tools) Max-step guardrail</p> <p>GOVERNANCE CONFIG GRAF Layers 1-4 Exception HTL Action trace logging</p> <p>PROVEN CASES Klarna Customer Service Wells Fargo Salesforce Agentforce</p> <p>ROI EVIDENCE 30% Zone I, 48% Zone II High volume applicability Repeatable outcomes KEY RISK: Stubborn planning in Zone II Loop without progress</p>	<p>Plan-and-Execute <i>Optimal Zone: Zone II</i></p> <p>WHEN TO USE Multi-step processes (2-15 steps) Plan validation adds value D1=6, moderate complexity</p> <p>WHEN NOT TO USE Highly dynamic environments Plan violation risk in high Zone III without OCG</p> <p>MODEL SELECTION Mini-class (GPT-4.1 mini) Full for planning phase</p> <p>SCAFFOLDING REQUIRED Planner + Executor split Plan validation gate Step-by-step execution log</p> <p>GOVERNANCE CONFIG GRAF Layers 1-4 Plan review HTL OCG Gate 1 (optional)</p> <p>PROVEN CASES General Mills Supply Chain Sentara Claims Processing Stanford ChatEHR</p> <p>ROI EVIDENCE 17% Zone I, 61% Zone II Best Zone II pattern Best for complex workflows KEY RISK: Plan violation in dynamic env Over-planning overhead</p>
<p>Orchestrator-Subagent <i>Optimal Zone: Zone II</i></p> <p>WHEN TO USE Parallel specialized tasks 4+ tools/systems High coordination complexity</p> <p>WHEN NOT TO USE Simple single-domain tasks Low volume (overhead too high) Zone I processes</p> <p>MODEL SELECTION Full orchestrator + Mini subagents (mixed model routing)</p> <p>SCAFFOLDING REQUIRED Supervisor agent Specialist subagents Result aggregation layer</p> <p>GOVERNANCE CONFIG GRAF Layers 1-5 Subagent output validation Cross-agent audit trail</p> <p>PROVEN CASES BNY Digital Employees Walmart Store Operations JPMorgan Investment Analytics</p> <p>ROI EVIDENCE 60% Zone I, 60% Zone II Highest parallelism gains Best for enterprise scale KEY RISK: Coordination overhead Subagent failure cascades</p>	<p>Critic-Actor <i>Optimal Zone: Zone II-III</i></p> <p>WHEN TO USE Low error tolerance Compliance sensitive outputs D3=5, D2=5</p> <p>WHEN NOT TO USE High volume, low risk tasks Latency critical processes Zone I (overkill)</p> <p>MODEL SELECTION Full-class for both Actor + Critic (GPT-4o / Claude 3.5)</p> <p>SCAFFOLDING REQUIRED Actor generates output Critic validates/reflects Revision loop (max 3x)</p> <p>GOVERNANCE CONFIG GRAF Layers 1-4 OCG Gate 2 mandatory All outputs logged</p> <p>PROVEN CASES BNY Health Prior Auth BNY Legal Review PwC Client Deliverables</p> <p>ROI EVIDENCE 50% Zone II, 41% Zone III Best error reduction pattern 64% compliance improvement KEY RISK: Increase (2x) Critic-Actor disagreement loops</p>	<p>Reflexion <i>Optimal Zone: Zone II</i></p> <p>WHEN TO USE Learning from failed attempts Iterative improvement needed Code review, content refinement</p> <p>WHEN NOT TO USE Real-time processes Irreversible first attempt actions Zone III compliance tasks</p> <p>MODEL SELECTION Mini-class (GPT-4.1 mini) Full for complex reflection</p> <p>SCAFFOLDING REQUIRED Attempt + Evaluate + Reflect Memory of past failures Max iteration guardrail</p> <p>GOVERNANCE CONFIG GRAF Layers 1-4 Iteration audit log Human review at max iter</p> <p>PROVEN CASES Morgan Stanley Code Review Salesforce Content Generation IT Ops Incident Resolution</p> <p>ROI EVIDENCE 80% Zone I, 17% Zone II Strongest for iterative tasks Self-improving over time KEY RISK: Infinite loop risk Over-reflection on simple tasks</p>
<p>Memory-Augmented <i>Optimal Zone: Zone II</i></p> <p>WHEN TO USE Multi-session continuity Personalized interactions Long-term relationship context</p> <p>WHEN NOT TO USE Standalone, one-off tasks Privacy sensitive without consent Zone I simple tasks</p> <p>MODEL SELECTION Mini-class + Vector DB (GPT-4.1 mini) Embedding model for retrieval</p> <p>SCAFFOLDING REQUIRED Episode memory store Semantic retrieval Context window management</p> <p>GOVERNANCE CONFIG GRAF Layers 1-5 Memory access audit PII handling controls</p> <p>PROVEN CASES Wells Fargo Fargo (long-term) Klarna (customer history) Stanford ChatEHR (patient)</p> <p>ROI EVIDENCE 67% Zone I, 52% Zone II Highest L2 improvements Best for relationship depth KEY RISK: Privacy/DPI exposure Memory poisoning attacks</p>	<p>Multi-Agent Debate <i>Optimal Zone: Zone II-III</i></p> <p>WHEN TO USE High-stakes decisions Multiple valid perspectives Balance over agent</p> <p>WHEN NOT TO USE Time-critical processes Cost-sensitive high-volume Zone I tasks</p> <p>MODEL SELECTION Full-class for all agents (GPT-4o / Claude 3.5) Diversity of models preferred</p> <p>SCAFFOLDING REQUIRED N-debate agents (3-5) Moderator agent Consensus scoring</p> <p>GOVERNANCE CONFIG GRAF Layers 1-6 Debate transcript logging Human moderator for deadlock</p> <p>PROVEN CASES JPMorgan Risk Assessment PwC Audit Opinions Healthcare Diagnosis Support</p> <p>ROI EVIDENCE 52% Zone I, 50% Zone II, 43% Zone III Highest decision quality Best for irreducible decisions KEY RISK: Cost pattern Latency 3 SA vs. 1oAvt</p>	<p>Neuro-Symbolic (OCG) <i>Optimal Zone: Zone III</i></p> <p>WHEN TO USE Regulated industry compliance Formal policy enforcement D3=4, D2=4</p> <p>WHEN NOT TO USE Informal, creative tasks Zone I/II without compliance req. Low-stakes processes</p> <p>MODEL SELECTION Full-class neural + Symbolic ontology engine (GPT-4o + OWL/SPARQL)</p> <p>SCAFFOLDING REQUIRED Neural LLM + Symbolic rules OCG Gate 1 + Gate 2 Policy ontology management</p> <p>GOVERNANCE CONFIG Full GRAF (all 7 layers) OCG mandatory Pre-execution approval HTL</p> <p>PROVEN CASES MUNY Health (CRS compliance) BNY (regulatory change) Sentara (billing compliance)</p> <p>ROI EVIDENCE N/A Zone I, 13% Zone II, 47% Zone III 64% compliance improvement Best Zone III pattern KEY RISK: Implementation complexity Ontology maintenance overhead</p>

Pattern Selection Principles

1. **Simplicity is a virtue.** The Single-Tool Agent achieves the highest success rate (82%) because it does one thing reliably. Do not use an Orchestrator-Subagent pattern if a Single-Tool Agent will suffice.
 2. **Match the model to the pattern.** Do not use GPT-4o for a Zone I ReAct pattern; it is a waste of tokens. Use nano-class models for Zone I, mini-class for Zone II, and full-class for Zone III.
 3. **Zone III requires OCG.** If you are deploying in a regulated industry or a high-risk process (Zone III), the Neuro-Symbolic (OCG) pattern or Critic-Actor with OCG wrapping is mandatory. ReAct in Zone III has a 19% success rate.
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Part 3: The Use Case Matrix

The Use Case Matrix maps common enterprise processes to their optimal patterns, based on verified real-world deployments. It provides a reality check against vendor claims by showing what leading organisations actually deployed, and what ROI they actually achieved.

Agentic Use Case Matrix — Proven Patterns by Industry and Process Type
van Horne (2026), EIGENVECTOR RESEARCH — Based on 177 enterprise deployments, 2023-2026

USE CASE	SECTOR	ZONE	PATTERN	MODEL TIER	GOVERNANCE	VERIFIED ROI	REAL CASE
Contract Analysis	Legal/ FinServ	Zone I	Single-Tool Agent	Nano-class	GRAF 11.3 Sampling HITL	360k lawyer hrs/yr (avoided)	JPMorgan COIN 2023
Customer Service Chat	Retail/ E-comm	Zone I-III	ReAct + Memory	Nano/Mini	GRAF 11.4 Exception HITL	\$60M savings/yr (53 FTE equiv.)	Klarna 2024
Claims Processing	Insurance	Zone I-II	Plan and Execute	Mini-class	GRAF 11.4 OCC optional	30% auto-resolved 3-sec resolution	Lamda 2024
Prior Authorization	Healthcare	Zone III	Critic-Actor + OCG	Full-class	Full GRAF OCC mandatory	40% without human review	MISC Health 2025
Supply Chain Optimization	Manufacturing	Zone II	Orchestrator-Subagent	Full-orch + Mini subs	GRAF 11.5 Value HITL	\$20M+ savings/yr (avoided)	General Mills 2025
Code Review & Devs	IT / Software	Zone I-II	Reflexion + Single-Tool	Mini-class	GRAF 11.4 Complexity HITL	28k dev hrs reclaimed/yr	Morgan Stanley 2025
Sales Lead Qualification	B2B Sales	Zone II	Orchestrator-Subagent	Mini-class	GRAF 11.4 Value HITL	290% ROI vs 1h to 45s response	Salesforce Agentforce 2025
Regulatory Compliance	Banking/ Fin	Zone III	Neuro-Symbolic (OCG)	Full-class + Orchest	Full GRAF OCC + Pre-HITL	54.2% compliance improvement	BNY 2025
Clinical Decision Support	Healthcare	Zone III	Memory-Aug + Plan-Execute	Full-class	Full GRAF Physician HITL	Proactive alerts reduced errors	Stanford ChatEHR 2025
Knowledge Management	Professional Svc	Zone I-II	ReAct + Memory	Mini-class	GRAF 11.4 Client review	240k hrs saved in 1 month	DuPont Capital 2025
Fraud Detection	Banking	Zone II	Critic-Actor	Full-class	GRAF 11.5 Alert HITL	30% false positive reduction	Wells Fargo 2025
Store Ops Automation	Retail	Zone II	Orchestrator-Subagent	Mini-orch + Nano subs	GRAF 11.4 Store override	4,700 stores 1 agent system	Volant 2025
Investment Research	Asset Mgmt	Zone II-III	Multi-Agent Debate	Full-class (diverse models)	GRAF 11.6 Analyst review	42% live agents \$14B track/budget	JPMorgan AssetFis 2025
HR Onboarding & Screening	Cross-sector	Zone I-II	Plan and Execute	Mini-class	GRAF 11.4 HR HITL	40% time reduction (industry avg)	Multiple 2024-2025
IT Incident Resolution	IT Operations	Zone I	ReAct Single-Tool	Nano-class	GRAF 11.3 Exception HITL	71% auto-resolved 1573x 40%	Multiple IT Ops 2024-2025

■ Zone I: Automate Now (PASS > 7.0)
 ■ Zone II: Pilot First (PASS 5.5-6.9)
 ■ Zone III: Automate with Caution (PASS 4.0-5.4)
 ■ Zone IV: Do Not Automate (PASS < 4.0)

Agentic Use Case Matrix

Key Insights from the Matrix

- The ROI Reality Gap:** Notice that the verified ROI figures in the matrix are substantial (e.g., \$60M for Klarna, 360k hours for JPMorgan), but they are typically 50% lower than initial vendor projections. This is because verified ROI accounts for governance overhead.
- The Dominance of Zone II:** Most high-value enterprise use cases fall into Zone II (Pilot First). They require more sophisticated patterns (Plan-and-Execute, Orchestrator) and more robust governance than the simple ReAct patterns often demonstrated in vendor proofs-of-concept.
- The Necessity of HITL:** Every successful deployment in the matrix includes a Human-in-the-Loop (HITL) component. The difference is in the trigger: Zone I uses sampling or exception HITL, while Zone III uses mandatory pre-execution approval.

Conclusion: From Framework to Factory

This Pattern Framework provides the diagnostic tools required to design successful agentic AI deployments. However, knowing *what* to build is only half the challenge; the other half is building it repeatedly, safely, and at scale.

Organisations that achieve the highest success rates do not treat each deployment as a bespoke project. They establish an **Agentification Factory** — an organisational model that systematises process assessment, pattern selection, governance design, and value measurement. The factory model is the subject of the companion paper: *The Agentification Factory: Organisational Design for Enterprise AI at Scale*.